PORTABLE COMPUTER HAVING A DISPLAY MODULE MOVEABLE AMONG CLOSED, KEYBOARD TYPING AND IMAGE VIEWING POSITIONS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a portable computer, more particularly to one having a display module that is movable among closed, keyboard typing and image viewing positions.

2. Description of the Related Art

FIG. **1** illustrates a conventional portable computer that includes a display module **10**, a main frame module **12** and a pivot unit **14**. The pivot unit **14** interconnects pivotally a side edge of the display module **10** and a side edge of the main frame module **12** about a pivot axis such that the display module **10** is movable relative to the main frame module **12** between a closed position, where the display module **10** is disposed on top of the main frame module **12** with a display panel **100** on the display module **10** facing downwardly and covering a keyboard **120** on a top surface of the main frame module **12**, and a keyboard typing position, where the display panel **100** forms an angle with the keyboard **120**. Some of the drawbacks of the conventional portable computer are as follows:

1. When typing characters with the use of the keyboard **120**, the location of the hands and the viewing angle of the eyes are fixed at non-natural postures.
2. The main frame module **10**, which includes the keyboard **120**, is often obstructive when the portable computer is used only for browsing the Internet via touch control or pen control.

SUMMARY OF THE INVENTION

Therefore, the object of the present invention is to provide a portable computer of an ergonomic design that has a display module movable among closed, keyboard typing and image viewing positions so as to overcome the aforesaid drawbacks commonly associated with the prior art.

According to this invention, a portable computer comprises a display module, a main frame module and a pivot unit. The display module has two lateral sides and a panel mounting side provided with a display panel. The main frame module has two lateral sides and a keyboard mounting side provided with a keyboard. The pivot unit interconnects pivotally the lateral sides of the display module and the main frame module about a first pivot axis located at an intermediate section of the lateral sides of the display module, and about a second pivot axis located at a rear end portion of the lateral sides of the main frame module and parallel to the first pivot axis to permit movement of the display module among a closed position, where the display module is disposed on top of the main frame module with the display panel facing downwardly and covering the keyboard, a standard keyboard typing position, where the display panel forms an angle with the keyboard, and an image viewing position, where the display module is disposed on top of the main frame module and covers the keyboard with the display panel facing upwardly.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiment with reference to the accompanying drawings, of which:

FIG. **1** is a schematic side view illustrating a conventional portable computer;

FIG. **2** is a perspective view of the preferred embodiment of a portable computer according to the present invention, illustrating a display module thereof in a closed position;

FIG. **3** is a schematic side view of the preferred embodiment, illustrating the display module thereof in the closed position;

FIG. **4** is a perspective view of the preferred embodiment, illustrating the display module thereof in a standard keyboard typing position;

FIG. **5** is a schematic side view of the preferred embodiment, illustrating the display module thereof in the standard keyboard typing position;

FIG. **6** is a perspective view of the preferred embodiment, illustrating the display module thereof in an ergonomic keyboard typing position;

FIG. **7** is a schematic side view of the preferred embodiment, illustrating the display module thereof in the ergonomic keyboard typing position;

FIG. **8** is a perspective view of the preferred embodiment, illustrating the display module thereof in an image viewing position;

FIG. **9** is a schematic side view of the preferred embodiment, illustrating the display module thereof in the image viewing position; and

FIG. **10** is a perspective view illustrating a pivot retainer of the preferred embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. **2** and **3**, the preferred embodiment of a portable computer according to the present invention is shown to comprise a display module **2**, a main frame module **3** and a pivot unit **4**.

The display module **2** has two lateral sides and a panel mounting side provided with a display panel **20** (see FIG. **4**). Each of the lateral sides of the display module **2** has a rear portion formed with a locking hole **22** and an engaging hole **24**. The engaging hole **24** is disposed proximate to a rear edge of the display module **2** relative to the locking hole **22**. Each of the lateral sides of the display module **2** further has an intermediate portion provided with a first pivot retainer **26**.

The main frame module **3** has two lateral sides and a keyboard mounting side provided with a keyboard **36**. Each of the lateral sides of the main frame module **3** has rear and front end portions provided respectively with second and third pivot retainers **32**, **30**. The front end portion of each of the lateral sides of the main frame module **3** further has a retaining hole **34** proximate to a front edge of the main frame module **3** relative to the third pivot retainer **30**.

The pivot unit **4** includes a pair of main support arms or links **40**. Each of the main links **40** is disposed adjacent to a respective one of the lateral sides of the display module **2** and the main frame module **3**, and has a first end mounted pivotally and frictionally on the display module via the respective first pivot retainer **26**, and a second end mounted pivotally and frictionally on the main frame module **3** via the respective second pivot retainer **32**. Each of the main links **40** further has an intermediate section with an inner side that is formed with a locking protrusion **400**. At least one of the main links **40** is hollow to receive electrical wiring (not shown) for interconnecting electrically the display module **2** and the main frame module **3**.